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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/591,239 06/09/00 HIRANO

Y P/2007-63

EXAMINER

IM22/0622

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SHOSHU, C	
ART UNIT	PAPER NUMBER

1714
DATE MAILED:

06/22/01

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/591,239

Applicant
Hirano et al.

Examiner
Callie Shosho

Art Unit
1714



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirements.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 20) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claims 1, 3, 6, and 9 each recite "degree of acetylation" followed by "(weight percent gain)". The scope of the claims is confusing in light of the recitation of "(weight percent gain)" because it is not clear if this limitation is separate from, different than, or a specific type of degree of acetylation.

Given that page 3 of the present specification discloses that the degree of acetylation represents the percent weight gain, it is suggested that either the phrase "(weight percent gain)" is removed from the claims since the degree of acetylation is defined by the specification or the claims are rewritten to remove the parentheses from "weight percent gain", i.e. "degree of acetylation or weight percent gain of said acetylated wood is 7% or greater".

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(b) Claim 12 discloses that the “second wood elements are not acetylated”, while claim 6, on which claim 12 depends, discloses “second wood elements which are acetylated with a second degree of acetylation”. The scope of claim 12 is confusing given that the language of claim 6, i.e. “which are acetylated” suggests that the second wood elements have some degree of acetylation while claim 12 discloses that the second wood elements are not acetylated. It is suggested that the phrase “optionally” is inserted in line 3 of claim 6 after “are” and before “acetylated” in order to indicate that the second wood elements may or may not be acetylated.

(c) The scope of claims 5 and 11 is confusing given that it is not clear what binder is represented by “polymeric MDI”. It is suggested that this phrase is replaced with “polymeric 4,4-diphenylmethane diisocyanate”.

(d) Claims 2 and 7 each recite “acetylating wood elements by placing in gas or liquid which containing acetyl groups”. Thus, the scope of claims 2 and 7 is confusing given that some words appear to be missing in each of the claims. Specifically, what is placed in gas or liquid? Clarification is requested.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwata et al. (U.S. 5,736,218).

Iwata et al. disclose a method for manufacturing ligneous material comprising (i) preparing acetylated wood elements wherein the degree of acetylation of the wood is 12-20% and (ii) binding the acetylated wood with polyisocyanate such as polymeric MDI. It is disclosed that the wood is acetylated by being brought into contact with vapor which contains acetyl groups (col.1, lines 28-32, col.4, lines 40, col.5, line 61-col.6, line 7, and col.8, lines 46-48).

In light of the above, it is clear that Iwata et al. anticipates the present claims.

5. Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki et al. (U.S. 6,129,871).

Suzuki et al. disclose a method for manufacturing ligneous material comprising (i) preparing acetylated wood elements wherein the degree of acetylation of the wood is 12-20% and (ii) binding the acetylated wood with polyisocyanate such as polymeric MDI. It is disclosed that

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the wood is acetylated by being brought into contact with vapor which contains acetyl groups (col.4, lines 1-24 and 64-65 and col.9, lines 22-31).

In light of the above, it is clear that Suzuki et al. anticipates the present claims.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06198610 in view of WO 95/05275.

Pending translation, it is noted that JP 06198610 discloses a method for manufacturing ligneous material comprising (i) preparing acetylated wood elements wherein the degree of acetylation of the wood is 5-20% and (ii) binding the acetylated wood with phenol resin binder. It is disclosed that the wood is acetylated by being brought into contact with liquid which contains acetyl groups.

The difference between JP 06198610 and the present claimed invention is the requirement in the claims of polyisocyanate binder.

WO 95/05275, which is drawn to wood composition, disclose the use of isocyanate resin binder such as MDI, i.e. 4,4-diphenylmethane diisocyanate, in place of conventionally used binders such as phenolic resins (page 6, lines 1-5, page 6, line 29-page 7, line 14, page 9, lines 14-18 and 24-29, and page 10, line 13). The motivation for using isocyanate resin binder is to produce molded wood composition with superior surface qualities (page 1, lines 4-9).

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In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use polyisocyanate binder in the method of JP 06198610 in order to produce ligneous material with superior surface qualities, and thereby arrive at the claimed invention.

9. Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 61066604 in view of WO 95/05275.

Pending translation, it is noted that JP 61066604 discloses a method of manufacturing ligneous material comprising mixing first wood elements which are 15-20% acetylated and second wood elements which are not acetylated to form third wood elements and then binding the third wood elements with phenolic binder. It is further disclosed that the first wood elements are acetylated by being brought into contact with liquid which contains acetyl groups. It is noted that since the first wood elements has 15-20% degree of acetylation and second wood elements are not acetylated, the average degree of acetylation of the third wood elements, i.e. produced by mixing first wood elements and second wood elements, is 7.5-10%.

The difference between JP 061066604 and the present claimed invention is the requirement in the claims of polyisocyanate binder.

WO 95/05275, which is drawn to wood composition, disclose the use of isocyanate resin binder such as MDI, i.e. 4,4-diphenylmethane diisocyanate, in place of conventionally used binders such as phenolic resins (page 6, lines 1-5, page 6, line 23-page 7, line 14, page 9, lines

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14-18 and 24-29, and page 10, line 13). The motivation for using isocyanate resin binder is to produce molded wood composition with superior surface qualities (page 1, lines 4-9).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use polyisocyanate binder in the method of JP 061066604 in order to produce ligneous material with superior surface qualities, and thereby arrive at the claimed invention.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoshimura et al. (U.S. 6,010,793) disclose method of preparing ligneous material by binding acetylated wood with phenol binder.

Symons (U.S. 6,146,710) discloses impregnating lignocellulosic material with MDI.

Hirano (U.S. 5,431,868) disclose a method of acetylating wood by placing the wood in vapor which comprises acetyl groups.

GB 2075038 disclose mixing MDI and wood.

Rowell et al. (U.S. 4,804,384) disclose a method of acetylating wood by placing the wood in liquid which comprises acetyl groups.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner

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can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

CS

Callie Shosho

6/20/01

Vasu Jagannathan
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